1: Handy E-5 (1920-1921)1923 OX6 Marquesas OX6

the lingering shreds of the ancient culture remain—survivals of eating habits, of customs connected with adoption, death, and so on. But the genuine ancient culture is completely gone, even beyond the memories of any but a few especially intelligent middle-aged and old people. There are a few old Marquesan thatched houses still standing in different islands, but the rest of the dwellings are small plank houses, generally of two rooms, with corrugated iron roofs, and usually devoid of furniture. (See Pl. I.) The dress of the natives is entirely of European goods. While *popoi* made of breadfruit is still the staple of their diet, and while cooking is still done in the old way in the cook house, the food is much more European than native on account of the use of canned goods, rice, sugar, coffee and tea, and so on, the ubiquitous kerosene can being the universal cooking utensil. On the other hand, though the natives are Europeanized to the extent of being nominally Christian, there are practically none who have accepted or understood anything more than the barest externals of Catholicism or Protestantism. Though classified by whites as French subjects, they are still in their own minds simply native islanders, their sense of local and racial identity having been in no way fundamentally affected by eighty years of white dominance.

The inhabitants of the Marquesas Islands number today about eighteen hundred, including a handful of whites, and many mixed bloods—for the most part white and Chinese mixtures with the native. Although, according to the reports of early visitors, the natives of these islands were the finest physical specimens in the Pacific in the early days, very few of them today may be classified even as examples of good physique. Exceedingly few are physically sound or free from serious disease of some kind. The whites have brought, and still bring, syphilis, gonorrhea, a type of rapid consumption called by the natives *pakoko*, influenza, and many other minor ailments. Smallpox at one time ravaged two of the northern islands and the Chinese brought leprosy. Degeneration of the native physique is due to these diseases against which the natives have been in no way protected; to liquors, drugs, and tobacco; and to an inactive, listless life with decay of native standards resulting in the breaking down of their whole system of life and thought and the elimination of all their natural avenues for expression—a condition that has been brought about largely by the organized and unorganized forces of white influence. The near disappearance of this people has been and is due to lack of comprehension on the part of whites of all the nations in contact with them; to abuse that the altruism of a few conscientious missionaries has been totally unable to counterbalance, and to the trait in the native character which leads to uncontrolled abandonment to sensory indulgence. (See Pl. II.)

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

lation of Nuku Hiva as 80,000 which is obviously an impossible number. During the early part of the nineteenth century the population declined rapidly as a result of diseases introduced by the European whalers. Du Petit-Thouars, in 1838, estimated the population at 20,000; Houan, in 1856, gave 12,500 as the grand total, and an actual census at the time of Clavel's visit in 1883 showed 4,865. Since that time the decline has been steady but less rapid, the present inhabitants numbering about 3,000, many of whom are Chinese or European half-castes. These half-castes are more resistant to disease than the pure-blood natives and through them the language and fragments of the culture will probably be preserved for several generations. The survival of the pure native stock is doubtful, although in 1920 the natives of the island of Ua Pou, who were only slightly mixed, were holding their own, and those of Ua Huka showed a slight increase in number. The most rapid decline is in the southern islands where intensive European contact is more recent. On one of these islands, Tahu Ata, there are said to be nearly a hundred deaths to every birth. The influenza epidemics, so destructive in Polynesia, did not reach the Marquesas.

SOCIAL ORGANIZATION AND RELIGION

An account of the religion and social organization of the Marquesas is given by Handy (32), but a resume is necessary as a background for the present study of material culture.

The natives were divided into a great number of tribes which were for the most part mutually hostile. As a rule each of these tribes occupied a single valley, but several of the larger valleys were occupied by two or more tribes who often fought among themselves, although they usually united against outsiders. Thus in the valley of Tai-pi Vai, rendered famous by Melville's narrative, "Typee," there were three groups of people. One group occupied the head of the valley; a second, the middle; and a third, the lower end. The hostility between these groups was so strong that even after their ostensible conversion to Christianity it was necessary to build a church in each section to prevent fights during religious services. No governmental unit larger than the tribe existed, but there appear to have been shadowy confederacies of several tribes, who combined for action in case of hostilities from other tribes. In Nuku Hiva and Hiva Oa at least, there were still larger dual divisions, comprising the eastern and western halves of these islands. The only approach to centralized power appears to have been in the island of Ua Pou, where the inhabitants of one valley had extended their sway over all the other tribes, but even here the autonomy of the conquered groups does not seem to have been seriously interefered with.

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

CONCLUSION

In spite of the large amount of literature dealing with Polynesia, few parts of this vast region have been carefully studied and there is no part for which the information can be considered at all complete. New Zealand is probably the best known locality. Satisfactory, but by no means complete, information is available for Hawaii and Samoa and the present activities of Bishop Museum will contribute additional information regarding Tonga, the Austral Islands and the Marquesas.

Accounts of the culture of single localities are chiefly valuable as a basis for the careful comparative study, which alone can throw light on the relations of the various Polynesian groups and ultimately on the larger questions of Polynesian origin and diffusion. The final solution of Polynesian problems can come only from a correlation of the evidence along all lines. Comparative studies based on a single class of evidence—traditions, religion, material culture or physical type—serve to arrange the data in order and make them available for such correlation. Theories based upon such partial studies can only be tentative but are justifiable on the basis of Bacon's dictum that truth can be brought out of error much more readily than out of chaos.

Recent studies of physical type have proved conclusively that the Polynesians are not a pure race but are made up of at least three racial elements (70). These elements are a dolichocephalic negroid race, a dolichocephalic or mesocephalic race which shows Caucasic affinities, and a brachycephalic race with slight Mongoloid affinities which Sullivan calls Indonesian (79, *b*, p. 18). The frequency and distribution of the two non-negroid races seems to indicate that they entered the region in nearly pure form. All three races are present in most of the Polynesian islands but they vary in the proportion which they bear to the total population of each group. The negroid element is strongest in Easter Island but is important in northern New Zealand and is found throughout southeastern Polynesia. The Caucasic element is strongest in northern New Zealand and the Marquesas. The Indonesian element is strongest in Tonga but is important in Samoa, southern New Zealand, Hawaii and the northern Marquesas.

Polynesian material culture shows an even more complex condition. The climate and products of all the Polynesian islands except New Zealand are so nearly the same that local difference in culture can not be ascribed to environmental causes, but it is hard to determine which of them are due to differences in the culture of the original settlers of each group. Many of the Polynesian groups are separated from their nearest neighbors by hundreds of miles of open sea and must have originally been settled by very small parties of immigrants. The *tuhuna* system, which placed the more important industries in the hands of

7: Linton E-5 (1920-1921) 1923 OX6 Marquesas OX6

head hunting, preservation of the skulls of ancestors, exposure or preservation of corpses, instruction or initiation of young men, absence of large governmental units and chiefs of little power are all of wide occurrence in Melanesia although lacking in western Polynesia. In spite of the general Melanesian tone of the Maori and Marquesan cultures, analysis shows that they are not closely linked with the culture of any one Melanesian locality. The art resemblances are general rather than specific and the Maori-Marquesan image conventions are practically absent in Melanesia. The non-material traits common to the Maori-Marquesan and Melanesian cultures are of very wide occurrence in Melanesia and are present in cultures which differ considerably on the material side. Single traits of the Maori and Marquesan material cultures are often present in one or two of the Melanesian cultures but the distribution of these traits is so irregular that little can be deduced from it.

Both the culture and physical type of the northern Maori and southern Marquesans indicate that their ancestors had been in contact with some negroid people. It has generally been assumed that this contact occurred in the course of their migration from Indonesia and that the Melanesian elements present in Polynesia reached that region as inclusions in some non-negroid race. Churchill (69, p. 139) advances the theory that the Polynesian immigrants coasted along Melanesia and made many stops to rest and raise crops, in this way coming into close contact with the negroid peoples of the region. The northern Maori and southern Marquesans are predominantly of the Caucasic race and if this race came by way of Melanesia and picked up negroid blood and Melanesian cultural traits in transit, we should expect to find negroid blood and Melanesian traits in all the groups where the Caucasic element is important. It is important in Hawaii, where there is very little of the negroid element (Sullivan, 79, *b*, p. 19) and where the culture shows hardly any Melanesian affinities. It seems probable, therefore, that at least some of the Caucasic immigrants into Polynesia had had little or no contact with Melanesians at the time of their arrival. The population of Easter Island, which lies on the extreme eastern edge of Polynesia, shows a larger proportion of negroid types than that of any other Polynesian locality (Dixon, 70, *a*, p. 370). Stone implements which are of Melanesian type and which differ considerably from those used by the historic population have been found in Tahiti. It seems improbable that a racial element which entered Polynesia as an inclusion would have retained its distinctive implement types or would have been strong enough to dominate physically in the easternmost Polynesian island thousands of miles from Melanesia. It is more probable that the population of central and southeastern Polynesia was at one time predominantly negroid in physical type and Melanesian rather than Polynesian in culture.

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currence in Melanesia, are probably referable to the negroid stratum in the southeastern Polynesian population. It also has several features in common with the western Polynesian culture. It seems probable, therefore, that it is a blend between a culture of western Polynesian type and the culture of the Caucasic immigrants who mixed with negroids to produce the southeastern Polynesian culture. The historic Hawaiians are predominantly brachycephalic but Sullivan concludes that they are a thorough mixture of the Caucasic and Indonesian races.

Each of the three races present in Polynesia probably entered the region at a different time and brought with it a distinctive culture but it is still impossible to establish their chronological sequence. The negroid race was probably the first to arrive in central and southeastern Polynesia. The main argument which has been advanced against the presence of a negroid population in this region has been the supposed inability of negroid peoples to make the long voyages necessary to colonize Polynesia. It is improbable that a race able to reach Fiji from the New Hebrides, the nearest Melanesian group to the west, would have been unable to cross the shorter stretch of sea separating Fiji from Tonga or to make the only slightly longer trip from Fiji to Samoa. The central and southeastern Polynesian groups are comparatively close lying and it would not have been difficult for even poor navigators to pass along them as far east as the Austral and Tuamotu Islands. It is not necessary to suppose that the migration of the negroid race was a deliberate or organized movement. It is probable that, like the historic Melanesians, they disliked long voyages but their presence in Fiji proves that they had seaworthy vessels and it would always be possible for a canoe to be blown out of its course and carried to islands unknown before. There is no indication that a pure negroid race reached Hawaii and the negroids probably did not reach New Zealand or the Marquesas except as inclusions in some superior race.

The order of arrival in Polynesia of the Caucasic and Indonesian races must be left an open question. The traditional movements in Polynesia have been from west to east and from southeastern Polynesia to Hawaii, the Marquesas and New Zealand. As the Indonesian stock seems to be strongest in western Polynesia this may indicate that it was the last to arrive. At the same time, the Indonesian element in the populations of New Zealand and the Marquesas seems to be strongest in those localities which are least desirable for settlement and which are farthest from the probable points of arrival of immigrants from the rest of Polynesia. In New Zealand and the Marquesas, therefore, the Indonesian race may have preceded the Caucasic race. It seems probable that the sequence of arrival of the three races in central and southeastern Polynesia was first, Negroid; second, Caucasic; third, Indonesian. The priority

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of the Indonesian race in the more distant Polynesian localities may have been due to their greater skill as navigators. The use of many piece canoes and lateen sails, which was apparently a feature of the Indonesian culture, gave them a freedom of movement which the negroid and Caucasic races probably lacked. Polynesian traditions mention long voyages of exploration and the sailing canoes of the Tongans carried complements of over a hundred men and were hardly more dependant upon winds and currents than European sailing vessels. It would not be difficult for a race which used such canoes to pass by islands which were held by hostile populations and establish itself in more distant islands which it found unoccupied or sparsely settled. The Indonesian race may have colonized both western and marginal Polynesia before it succeeded in conquering the large mountainous islands of southeastern Polynesia. The establishment of cultures of western Polynesian type in southeastern Polynesia must be quite recent for cultures of Maori-Marquesan type were still in existence there at the time of the twelfth century migration to New Zealand.

The routes by which the negroid, Caucasic and Indonesian races reached Polynesia can not be fully established until we have fuller information on Micronesia and Melanesia. The historic distribution of races and cultures in Polynesia seems to be best explained by the following hypothesis: The first settlers of central and southeastern Polynesia were negroid in race and Melanesian rather than Polynesian in culture. They entered the region largely as a result of accidental drifts and settled in Tonga, Samoa, and the Cook, Society, Austral and Tuamotu groups, but did not reach any of the more distant Polynesian localities. They came originally from Melanesia, probably from Fiji. The next immigrants to reach Polynesia were of the Caucasic race and had come from Indonesia by way of Micronesia. They arrived first in Samoa and spread over the territory held by the negroid people, mixing with them to produce a hybrid race and the southeastern Polynesian type of culture. A fairly pure group of the Caucasic race reached and colonized the Marquesas, which they found unoccupied or only partially settled by the negroids. A mixed group, in which the negroid element predominated, reached Easter Island. The Caucasic immigrants did not, at this time, reach either Hawaii or New Zealand. While the main body of the Caucasic immigrants were passing through Micronesia another group of the same race were coasting southward through Melanesia. This wing of the Caucasic migration was probably absorbed or dissipated before it reached Polynesia but it modified the culture of the eastern Melanesian islands to a considerable degree. The last immigrants to enter Polynesia in large numbers were of the Indonesian race. They came from Indonesia, like the Caucasic immigrants, and passed by way of Micronesia. In Micronesia their

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vanguard met and mixed with the rearguard of the Caucasic immigrants and a group of this mixed people sailed eastward, perhaps from the Marshall group, and discovered and colonized Hawaii. The main body of the Indonesian invaders arrived first in western Polynesia and established themselves most thoroughly in Tonga, where the islands were comparatively small and level. In Samoa, where the islands were large and mountainous, the earlier Caucasic and negroid population held out for a considerable time and was able to somewhat modify the culture and physical type of the conquerors. In Niue, an isolated group of the earlier population survived into historic times. The Indonesians sailed southward from western Polynesia and discovered and colonized New Zealand. They also spread over southeastern Polynesia and reached the Marquesas. In that group they mixed with the earlier Caucasic population producing a culture somewhat like that which had been carried to Hawaii by immigrants of mixed Caucasic and Indonesian race. They were unable to displace the mixed Caucasic and negroid populations of the larger southeastern Polynesian islands but they established colonies on these islands. This first Indonesian invasion was followed by a period of comparative quiescence during which few voyages were made. About the year 1000 A.D. (79, *a*, p. 223) a second period of voyages commenced. It is impossible to tell what caused the resumption of nautical activity, but it seems probable that western Polynesia had become overpopulated and that the culture of the Indonesians in that region had been stimulated by their contact with Fiji. Immigrants from western Polynesia reached the Society group and explored northward from it until they rediscovered Hawaii. There they found a branch of the same people who had been modified by long isolation and so were able to establish themselves as overlords without meeting with serious opposition. They brought to Hawaii a few features of culture which they had acquired during their passage through southeastern Polynesia. In southeastern Polynesia the pressure of the invasion from the west forced some of the population to migrate to northern New Zealand and the southern Marquesas. These migrants were predominantly Caucasic and negroid in race but were probably under the direction of chiefs descended from the earlier Indonesian invaders of southeastern Polynesia. In New Zealand they destroyed the earlier Indonesian population or drove it into the undesirable localities. In the Marquesas they ousted the earlier population from the southern islands of the group but were unable to conquer the northern islands. After the departure of these emigrants from southeastern Polynesia, western Polynesian immigrants established themselves in the region, destroying or modifying the earlier type of culture.

The story of the Marquesan population is the story of the Hawaiian and other Polynesian populations. From the data in Table I, supplied to me by Handy, it will be seen that in the course of the last 150 years the estimated population has shrunk from about 100,000 to less than 2,000. Handy says:[1]

> The condition of the health of the modern Marquesan is most distressing. I speak without exaggeration when I say that I doubt if there is a wholly sound physical specimen of a Marquesan alive. The principal diseases that are rampant are leprosy, syphilis, elephantiasis, a very rapid wasting pulmonary tuberculosis called *pokoko*, tubercular trouble in the throat, glands, and intestines, and deep ulcers and carbuncles. Dental caries is common.

In view of the theories of a Caucasoid origin of the Polynesian peoples it is likewise very desirable to keep clearly in mind the possibilities and probabilities of modern intermixture.

> From 1800 to 1838 there were only a few deserters from whalers. In 1838 the Catholic missionaries arrived and the French took possession of Nuku Hiva, Ua Pou, and Ua Huka. A small French colony with a maximum population of 100 was established. The white population probably never exceeded 100 in the whole group. Today it consists of about a dozen Catholic fathers and sisters and about twenty others. In 1880 a group of Cantonese Chinese were brought into the islands. It is probable that there were never more than 100 in the islands. There are now about thirty. Native women used to marry freely with the Chinese but the intermarriage ceased about ten years ago. The reason for the number of part Chinese today is not the number of Chinese immigrants, but the fact that the half-Chinese are sturdy, healthy, and good breeders. They resist the diseases that take off the natives and half whites.

Another point of interest is Handy's statement to the effect that the Marquesans are very accurate in remembering ancestry and as a general thing showed neither desire to conceal nor to boast of white blood if they had it. It is not a matter either for pride or shame. The amount of unadmitted modern white blood in our series is very probably negligible.

TABLE 1.—THE POPULATION OF THE MARQUESAS

DATE OF CENSUS	ESTIMATED POPULATION
1. Prehistoric:	Estimated to have been between 50,000 and 100,000, fluctuating with periods of plenty and famine.
2. 1773:	Cook estimated 50,000 for three southeastern islands. About 100,000 for the entire group.
3. 1804:	Krusenstern estimated 16,000 for Nuku Hiva. About 50,000 for entire group.
4. 1838:	Dupetit-Thouars estimated 20,000 for the entire group.
5. 1856:	Jouan estimated 12,500 for entire group.
6. 1867:	Lawson manuscript gives 7,411 for entire group.
7. 1884:	Clavel estimated 4,865 distributed as follows:

[1] Personal communication.

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GENERAL COMPARISON OF MARQUESANS WITH SAMOANS AND TONGANS.

X 142 114 The Bayard Dominick Expedition has furnished the comparative data from Samoa and Tonga. For New Zealand a unique and important contribution to somatology is that of Te Rangi Hiroa, a Maori, who has recently begun to publish in serial form a careful and thoroughly scientific study of his race. The first number,[1] dealing with skin color, hair form and color, eye color, weight, and stature has already appeared. Judging from this there is every reason to expect that the completed work will form one of the most important contributions to somatology.

Although skin color is of great interest the observations upon this character were most unsatisfactory. All of the observers complained that Fritsch's standard was not adapted to the study of the Polynesians. From my own experience with it I can sympathize with them. Furthermore the Fritsch standard is not expressed in numbers and I gave to the standards arbitrary numbers of my own. As the Fritsch chart is little known and to give the results in terms of it would be useless, it became necessary to translate these results into the terms of von Luschan's scale. I did this as best I could, but found it necessary to use two numbers in many instances. In order that there might be no personal peculiarities in the results I later asked four of the men engaged in these studies to match Fritsch's scale with von Luschan's scale. Here again great differences of judgment were shown by observers in the field. In view of this it seems best to state the results of skin color as a mere approximation. Two numbers were most frequently used—numbers 10 and 18 for unexposed skin color. Translated into terms of von Luschan's scale 10 was variously given as 6, 11, 12, 13, 14, 15. Number 18 is much darker and approaches 17, 18, or 22, 23, 24 of von Luschan's scale. For Tonga and Samoa Gifford and McKern most often reported 10 as the skin color for men. Handy gives 10 and 18 in about equal proportions. This would indicate that the Marquesans were considerably darker than the Samoans and Tongans. For exposed skin, however, no such differences occur. The Tongans, Samoans, and Marquesans are very similar. Buck's studies on the Maoris seem to indicate that they are also somewhat darker than the Samoans and the Tongans.

X 142 144 From Table V it will be noted that the Marquesans have more wavy hair than either the Samoans or the Tongans. Some of the difference may be accounted for by differences in standards of observation. This is true particularly of the curly hair of the Marquesans. (See p. 144.) But it seems fairly

[1] Hirea, Te Rangi (P. H. Buck), Maori somatology: Journ. Polynesian Soc., vol. XXXI, No. 2, 1922.

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certain that there is less straight hair in the Marquesans than in Samoa or Tonga. In Samoa and Tonga reddish-brown hair was reported, but its presence was somewhat discounted by the fact that a custom of bleaching by the use of lime was reported. Handy found a fairly high percentage of reddish-brown hair in the Marquesas, but no such process to account for it. On this point he says:[8]

> You will note that we have frequently marked hair color both black and reddish-brown. This indicates hair of the type that is almost universal with them, which appears to be black unless one sees it so that the light comes through it, when it is seen to have a strong auburn or reddish-brown tinge. I have never found any evidences of the custom of bleaching hair in the Marquesas neither in modern nor in ancient times. There was formerly a bleaching of the skin, but this is not practised now. I am convinced that this russet color in the hair was indigenous to the Marquesans before the coming of the early explorers.

This reddish tint of the hair has been the basis for much discussion and speculation. It has been attributed to intentional bleaching, to the natural bleaching effect of sunlight and salt water or both, to intermixture with the whites, or more often as evidence of a Nordic origin of the Polynesians as a whole. Speaking of hair color Buck[9] says:

> The general colour is black, but brown and reddish hair occur. Certain tribes have been stated to have had more than their share of red hair, and in these tribes it is said to occur in certain families. . . Although amongst the Maoris the confusion in colour caused by the Samoan and Tongan custom of limeing the hair, does not exist, yet owing to the admixture of white blood, great care has to be exercised in recording cases of red or brown hair as being full Maori. . . There was only one case in the whole series (760 men) of reddish brown hair and that was in a full Maori. Contrary to expectations, his skin color was 18 on von Luschan's scale (18 is the darker prevailing color of the Maori).

In Hawaii the reddish-brown hair under discussion is often found. I have seen in Hawaii thousands of mixed-bloods no one of whom had exactly this type of hair. I can confirm Doctor Buck's statement that it occurs in family groups. In two families studied it had persisted for three generations at least. As a rule it does not seem to be accompanied by a diminution of iris pigment or skin pigment. In only one family was it accompanied by weak eyes and in that only in the younger members of the family. It occurs in both sexes. Reddish-brown hair apparently occurs throughout Polynesia and I have seen the same type of hair in Chinese and Japanese who otherwise were typical members of their race. While the condition is interesting and important it should not be allowed to have too much influence on the imagination. I recommend Doctor Buck's paper for interesting comments on the Maori vocabulary and tradition dealing with hair color, hair form, and skin pigment.

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[8] Personal communication.
[9] Op. cit.

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TABLE V. COMPARISON OF ATTRIBUTE CHARACTERS IN SAMOANS, TONGANS, AND MARQUESANS ON A PERCENTAGE BASIS

CHARACTER	MALE			FEMALE		
	Samoan	Tongan	Marquesan	Samoan	Tongan	Marquesan
Hair form:						
Straight	55.1	41.5	30.5	47.8	34.4	25.7
Low waves	23.5	41.5	31.7	39.1	46.9	35.1
Deep waves	10.1	14.4	6.1	8.8	12.5	12.2
Curly	5.8	2.5	26.8	0	5.2	18.9
Frizzly	1.4	0	4.9	4.3	1.0	6.8
Woolly	0	0	0	0	0	1.3
Hair color:						
Black	91.4	94.1	87.5	56.9	87.6	84.2
Dark brown	4.3	4.2	6.3	8.8	4.1	6.3
Reddish brown	4.2[a]	1.6[a]	3.8	34.7[a]	7.2[a]	9.5
	MALES ONLY					
Development of hair:	UPPER CHEEK			CHEST		
None	10.1	2.1	63.4	59.7	23.4	65.8
Scant	46.3	15.8	17.1	22.3	28.7	21.0
Medium	31.9	33.7	14.6	14.9	25.5	6.6
Heavy	11.5	48.4	4.9	3.0	22.3	6.6
	LOWER CHEEK			ARM		
None	14.5	4.2	49.4	3.0	0	48.2
Scant	43.3	37.2	29.6	19.1	10.5	28.4
Medium	23.2	18.1	16.0	35.3	43.2	14.8
Heavy	18.8	40.4	5.0	42.6	46.3	8.6
	CHIN			LEG		
None	0	0	5.1	0	0	19.0
Scant	23.2	19.4	62.0	7.2	7.3	53.2
Medium	27.5	30.6	20.3	42.0	66.7	17.7
Heavy	49.2	50.0	12.6	50.7	26.0	10.1
	MALE			FEMALE		
Nasal bridge						
Low	21.4	21.7	15.5	56.9	30.5	54.8
Medium	64.3	70.4	78.5	39.1	67.4	42.5
High	14.3	7.8	6.0	4.3	2.1	2.7
Axes of nostrils						
Antero	2.9	1.7	4.8	0	5.3	1.4
Oblique	57.3	78.3	50.6	39.1	69.5	37.0
Transverse	39.7	20.0	44.6	60.9	25.3	61.6
Keilodonty						
Lateral incisors: No rim	51.5	42.1	59.1	57.1	36.3	75.9
Lateral incisors: Trace	34.3	42.9	24.2	23.8	40.6	16.7
Lateral incisors: Marked	14.1	14.9	16.7	19.0	23.1	7.4
Mesial incisors: No rim	68.2	57.9	61.8	76.0	62.6	81.5
Mesial incisors: Trace	25.7	29.8	23.5	14.3	26.4	14.8
Mesial incisors: Marked	6.0	12.3	14.7	9.5	10.4	3.7

[a] Said to be bleached with lime.

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TABLE VI. COMPARISON OF THE ANTHROPOMETRIC AVERAGES OF THE SAMOANS, TONGANS, AND MARQUESANS

CHARACTER	MALE			FEMALE		
	Samoan	Tongan	Marquesan	Samoan	Tongan	Marquesan
1. Stature	171.7	173.0	170.3	161.2	162.5	160.7
2. Head length	190.6	191.0	193.2	183.0	184.1	183.2
3. Head width	154.8	154.8	153.2	148.1	150.0	150.1
4. Minimum frontal	103.4	104.8	103.2	101.5	103.0	102.1
5. Face width	145.9	143.5	143.2	136.5	136.1	135.5
6. Bigonial diameter	104.6	104.8	109.5	99.0	99.2	103.0
7. Face height	131.1	128.2	124.1	121.1	124.1	114.5
8. Nose height	59.8	57.5	53.1	54.3	56.7	48.6
9. Nose width	43.8	44.4	43.2	41.2	41.9	40.4
10. Ear height	66.1	66.0	67.1	61.2	64.5	62.7
11. Ear width	35.2	34.5	32.7	33.6	33.4	31.2
12. Cephalic index	81.3	81.1	79.4	80.8	81.6	82.0
13. Fronto-parietal index	66.8	67.6	67.4	68.8	68.7	68.0
14. Cephalo-facial index	94.2	92.8	93.5	92.4	91.2	90.3
15. Zygomatico-frontal index	70.9	73.1	72.0	74.5	75.4	75.2
16. Zygomatico-mandibular	71.7	73.2	76.8	72.5	72.5	75.9
17. Facial index	89.9	89.2	87.0	89.8	90.8	84.7
18. Nasal index	73.6	77.6	81.9	76.3	74.2	83.6
19. Ear index	53.3	52.4	48.9	54.9	51.8	49.6

If the results may be taken at their face value the Marquesans are a much more glabrous people than either the Samoans or Tongans. While again allowances must be made for different observers it seems impossible that such large differences can be wholly explained in this way. Transverse nostrils are also more frequent in the Marquesas. On the other hand, the incisor rim is somewhat less frequent.

In Table VI the anthropometric averages are given. The Marquesans are considerably shorter than the Tongans and a little shorter even than the Samoans. The average of this series is less than that given by Deniker. The Marquesan head is longer and narrower than the heads of the Samoans and Tongans, the face is narrower and lower. The bigonial diameter is much greater. The nose is slightly narrower but markedly lower. Such differences result of course in a slightly lower cephalic index (in the males only), a larger zygomatico-mandibular index, a smaller facial index, and a larger nasal index. Again, it is possible to account for these differences in part by differences in technique, but there will still be a residue that must be explained in another way.

In Table II attention has been called to the great irregularity in distribution. There is not only a great range but a most irregular distribution within that range. This condition is emphasized by the standard deviations and coefficients of variation recorded in Table VII and in Table VIII. The Marquesan males have a greater standard deviation than either the Samoan or Tongan in ten of nineteen

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characters. In seven others they exceed the Samoans and in two others they exceed the Tongans. The excess in standard deviation for the females is in eleven of nineteen characters. In seven others they exceed the Samoans and in one other the Tongans. In both sexes the excess for facial index and nasal index is enormous. Practically the same excessive variability is revealed by the coefficients of variability. The Marquesan men have coefficients of variation greater than either the Samoans or Tongans in ten of nineteen characters. In five others they exceed the Samoans and in one other the Tongans. In the female series the excess of variation is even more accentuated. The Marquesan women are more variable than either the Samoans or Tongans in thirteen of nineteen characters and in five others they exceed the Samoans.

TABLE VII. COMPARISON OF THE STANDARD DEVIATIONS OF THE SAMOANS, TONGANS, AND MARQUESANS

CHARACTER	MALE			FEMALE		
	Samoan	Tongan	Marquesan	Samoan	Tongan	Marquesan
1. Stature	5.25	5.21	5.12	4.92	5.83	5.11
2. Head length	5.69	6.89	7.00	5.22	6.47	6.77
3. Head width	4.46	4.26	4.87	3.87	5.06	3.98
4. Minimum frontal	5.98	4.87	5.19	3.96	4.65	7.10
5. Face width	5.23	5.94	4.88	3.79	6.03	4.50
6. Bigonial	5.13	5.81	5.23	3.93	4.80	5.67
7. Face height	6.56	6.81	7.30	6.41	5.79	7.28
8. Nose height	3.64	3.91	3.97	4.53	3.75	4.40
9. Nose width	2.59	3.02	2.70	2.56	2.86	2.80
10. Ear height	4.23	4.57	4.53	3.33	3.97	5.99
11. Ear width	2.76	2.62	3.05	2.30	2.35	3.27
12. Cephalic index	3.53	3.14	3.52	2.98	4.09	3.66
13. Fronto-parietal index	3.30	3.51	3.75	3.12	3.22	4.50
14. Cephalo-facial index	2.84	4.68	3.13	2.63	3.23	3.08
15. Zygomatico-frontal index	3.55	4.23	4.37	3.34	3.33	5.06
16. Zygomatico-mandibular index	3.84	4.56	4.02	3.50	3.57	3.32
17. Facial index	4.87	4.43	6.17	5.03	4.32	5.69
18. Nasal index	5.86	7.58	7.75	7.99	6.15	9.17
19. Ear index	3.79	3.93	4.82	4.53	3.93	4.83

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TABLE VIII. COMPARISON OF THE COEFFICIENTS OF VARIATION OF THE SAMOANS, TONGANS, AND MARQUESANS (IN PERCENTAGE) 141 144

CHARACTER	MALE			FEMALE		
	Samoan	Tongan	Marquesan	Samoan	Tongan	Marquesan
1. Stature	3.05	3.01	3.00	3.05	3.58	3.20
2. Head length	2.98	3.60	3.60	2.85	3.51	3.70
3. Head width	2.88	2.75	3.20	2.61	3.37	2.70
4. Minimum frontal	5.78	4.64	5.00	3.90	4.51	7.00
5. Face width	3.59	4.13	3.40	2.77	4.43	3.30
6. Bigonial	4.90	5.54	4.80	3.96	4.83	5.50
7. Face height	5.00	5.31	5.80	5.30	4.66	6.40
8. Nose height	6.09	6.80	7.50	8.34	6.61	9.00
9. Nose width	5.91	6.80	6.20	6.21	6.82	6.90
10. Ear height	6.39	6.92	6.80	5.44	6.15	9.60
11. Ear width	7.84	7.59	9.30	6.84	7.03	10.30
12. Cephalic index	4.34	3.87	4.40	3.68	5.01	4.50
13. Fronto-parietal index	4.94	5.19	5.60	4.54	4.68	6.60
14. Cephalo-facial index	3.01	5.04	3.30	2.84	3.54	3.40
15. Zygomatico-frontal index	5.01	5.78	6.06	4.49	4.41	6.70
16. Zygomatico-mandibular index	5.42	6.22	5.20	4.83	4.92	4.40
17. Facial index	5.42	4.96	7.10	5.60	4.75	6.70
18. Nasal index	7.96	9.76	9.50	10.47	8.28	10.90
19. Ear index	7.11	7.50	9.90	8.25	7.58	9.70

TABLE IX. COMPARISON OF THE ANTHROPOMETRIC AVERAGES OF THE SOUTHEASTERN ISLANDS (GROUP I) AND OF THE NORTHWESTERN ISLANDS (GROUP II)

CHARACTER	45 MALE 39		30 FEMALE 43	
	Group I	Group II	Group I	Group II
1. Stature	169.5	171.1	160.2	161.2
2. Shoulder height	142.2	141.7	134.5	133.1
3. Arm length	79.6	79.5	73.4	71.9
4. Sitting height	87.3	87.4	84.0	84.8
5. Arm reach	176.0	177.5	163.5	161.9
6. Head length	192.7	193.7	183.6	182.7
7. Head width	153.9	154.8	148.4	151.4
8. Minimum frontal	101.9	104.5	101.3	102.6
9. Face width	142.1	144.4	133.8	136.7
10. Bigonial	109.2	109.8	102.2	103.6
11. Face height	128.0	120.6	117.1	112.6
12. Nose height	53.8	52.2	50.6	47.3
13. Nose width	42.8	43.9	39.7	40.9
14. Ear height	67.1	67.0	62.9	62.5
15. Ear width	32.6	32.9	31.3	31.0
16. Relative shoulder height index	83.4	82.8	83.8	82.5
17. Relative arm length index	46.9	46.7	45.6	44.8

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TABLE IX. COMPARISON OF THE ANTHROPOMETRIC AVERAGES OF THE SOUTHEASTERN ISLANDS (GROUP I) AND OF THE NORTHWESTERN ISLANDS (GROUP II)—CONTINUED

CHARACTER	MALE		FEMALE	
	Group I	Group II	Group I	Group II
18. Relative sitting height index	51.2	51.0	52.4	52.6
19. Relative arm reach index	103.8	103.8	101.5	100.3
20. Cephalic index	78.9	79.9	80.7	82.9
21. Fronto-parietal index	67.2	67.6	68.3	67.8
22. Cephalo-facial index	93.6	93.5	90.2	90.3
23. Zygomatico-frontal index	71.8	72.4	75.8	75.1
24. Zygomatico-mandibular index	76.9	76.6	76.4	75.6
25. Facial index	90.2	83.5	87.6	82.4
26. Nasal index	80.1	84.2	78.7	87.2
27. Ear index	48.8	49.1	51.0	49.7

TABLE X. COMPARISON OF ATTRIBUTE CHARACTERS OF THE SOUTHEASTERN ISLANDS (GROUP I) AND THE NORTHWESTERN ISLANDS (GROUP II)
(FREQUENCY IN PERCENTAGE)

CHARACTER	(44) MALE (38)		(31) FEMALE (43)	
	Group I	Group II	Group I	Group II
Hair form				
Straight	18.2	44.7	22.6	27.9
Low waves	43.2	18.5	45.2	27.9
Deep waves	9.1	2.6	9.7	13.9
Curly	29.5	23.7	16.1	23.3
Frizzly	0	10.5	6.4	4.7
Woolly	0	0	0	2.3
Axis of nostrils				
Antero-posterior	9.1	0	3.2	0
Oblique	54.5	46.2	54.9	23.8
Transverse	36.4	53.8	41.9	76.2
Keilodonty: Rim on mesial incisor				
Absent	45.0	80.8	68.2	81.3
Slight	32.5	11.5	22.7	12.5
Marked	22.5	7.7	9.1	6.2
Rim on lateral incisor				
Absent	50.0	80.8	71.5	87.9
Slight	31.0	11.5	19.0	12.1
Marked	19.0	7.7	9.5	0

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of the beard and body hair, and also a less frequent occurrence of the incisor rim. Type II is shorter, has shorter, wider heads, wider and lower faces, and wider and lower noses. As a result of these differences, the cephalic index is greater in Type II, the facial index is about 12 points less on the average, and the nasal index 12 or more points higher. Other consistent differences are smaller fronto-parietal indices and a larger ear index in Type II.

There can be no doubt that at least two separate and radically different groups of associated characters are represented. A study of the photographs of the two groups will add still further to the lists of associated characters. On the basis of measurements and descriptive characters, I have sorted out the photographs as best I could into groups approaching Type I and Type II. I do not urge that any of these be accepted as pure members of either type, although it seems altogether probable that many of them are. For our purpose it will be sufficient to say that in a totality of their characters the men in Plate XXXVI and the women in Plate XXXVIII approach Type I, as I have described it. The men who most clearly approach Type II are shown in Plate XXXVII and the women in Plate XXXIX. Many better eamples of the two types were photographed, but under such adverse conditions that the photographs do not lend themselves well to reproduction. Most of the men represented in Plate XXXVI are fairly typical of Type I. Numbers 7, 8, 10, 13 are very possibly of a different type. They have extremely short heads. In Plate XXXVII numbers 1, 2, and 3 are rather extreme examples of Type II. The other members are probably mixed with various other elements besides Type I. Numbers 3, 4, 7, 9, 11 and 14 are poor examples of the type. The women are much more difficult to select. Numbers 1, 2, 4, 7, 11, 12 and 13, on Plate XXXIX are good examples of Type II. Most of the women in Plate XXXVIII approach fairly closely Type 1, but numbers 5, 6, 9, and 15 are the best representatives. In Plate XL I have placed those who fall in the mixed and unclassified groups. Numbers 2, 5, 11, and 13 represent the extremely short-headed element as do also numbers 8 and 12 of Plate XXXVIII. For comparison a few photographs of persons of mixed Caucasian and Asiatic origin are given in Plate XLI.

A careful study of the photographs suggest many other characters in which the two types differ. Type II has thicker lips and the eyes are peculiar, being less wide open, and several have a suggestion of epicanthic fold. The lower lid of some of the eyes in Type II has a swollen beveled appearance. The outer canthus is somewhat higher than the inner canthus which results in an obliquely placed eye slit. Type II is also heavier and stockier. The neck is short and heavy. Type I, when all Type II characters are removed, are more Caucasoid in appearance. The nasal bridge is higher and the lips are thinner. The hair, too, seems to be straighter in Type I although it should be emphasized here that in neither of these two types

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do we find the stiff straight black hair characteristic of the Chinese, Japanese, and many Malay and American peoples.

TABLE XXXIX. INTER-ISLAND DISTRIBUTION OF TWO PHYSICAL TYPES IN THE MARQUESAS

Island	Type I		Mixed near Type I		Intermediate and unclassifiable		Mixed near Type II		Type II		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
MEN											
Nuku Hiva	0	0	2	18	2	18	2	18	5	46	11
Ua Huku	1	12	0	0	1	12	1	12	5	64	8
Ua Pou	4	20	7	35	1	5	3	15	5	25	20
Hiva Oa	22	63	4	11	7	20	0	0	2	5	35
Tahu Ata	0	0	0	0	0	0	0	0	0	0	0
Fatu Hiva	1	10	2	20	7	70	0	0	0	0	10
Total	28	33	15	18	18	21	6	7	17	20	84
WOMEN											
Nuku Hiva	1	14	0	0	2	28	2	28	2	28	7
Ua Huku	1	10	0	0	0	0	2	20	7	70	10
Ua Pou	1	4	2	7	8	29	4	14	12	44	27
Hiva Oa	10	38	4	15	7	27	2	8	3	12	26
Tahu Ata	2	100	—	—	—	—	—	—	—	—	2
Fatu Hiva	1	50	1	50	—	—	—	—	—	—	2
Total	16	21	7	9	17	23	10	13	24	32	74
TOTAL SERIES											
Nuku Hiva	1	5	2	11	4	22	4	22	7	39	18
Ua Hiva	2	11	0		1	5	3	17	12	67	18
Ua Pon	5	10	9		9	19	7	15	17	36	47
Hiva Oa	32	52	8	13	14	23	2	3	5	8	61
Tahu Ata	2	100									2
Fatu Hiva	2	17	3	25	7	58					12
Total	44	28	22	14	35	22	16	10	41	26	158

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A DETAILED ANALYSIS OF THE SAMOANS

In view of the clear evidences of at least two types in the Marquesas it becomes highly important to reconsider the Samoans and Tongans in order to determine if possible the presence or absence of Type II. It is not only probable but altogether likely that some of the diversity I attributed to Melanesian intermixture may be due to the presence of Type II since the differences are in the same characters.[10] While Type II cannot be considered Melanesian it has certain Melanesian, Papuan, and negroid characters which might very easily be mistaken for Melanesian influence. I refer, of course, to the darker skin, more wavy hair, low and broad faces, low and broad noses, and thick lips. As a matter of fact this leaves but one or two criteria with which to distinguish between Melanesian intermixture and the influence of Type II. This must be decided largely upon the basis of head form and relative curliness of the hair. With the possibility of head deformation in Tonga and Samoa, the problem is still further complicated.

It will be necessary to test further the homogeneity of the Samoan and Tongan series by subdividing them into different stature, head form, face form, and nose form groups, as I have done for the Marquesan material.

TABLE XLIII. AVERAGE CHARACTERISTICS OF THE STATURE GROUPS OF SAMOAN MEN

Characters	18 Tallest	Total series	20 Shortest
Cephalic index	81.2	81.3	82.0
Fronto-parietal index	68.0	66.8	67.1
Cephalo-facial index	93.9	94.2	93.4
Facial index	91.2	89.9	89.9
Nasal index	72.5	73.6	73.7
Rim on lateral incisor	.33	.76	1.10
Rim on mesial incisor	.22	.44	.63
Arm pigment	6.1	7.1	8.6
Cheek pigment	9.3	10.3	10.2
Hair form	1.9	1.7	1.6
Beard development	5.8	5.2	5.4
Body hair development	6.2	5.2	5.0
Elevation of nasal bridge [a]	2.2	1.9	1.8
Axes of nostrils [b]	2.3	2.3	2.3

[a] The higher the number the higher the nasal bridge.
[b] The larger the number the more transverse the nostrils.

[10] Op. cit.

[pp. 197-232 have been omitted from this source.
-Analyst]

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SUMMARY

1444 The modern "Polynesians" of the Marquesas, Samoa and Tonga are a mixed people. This fact accounts for the great diversity of opinion regarding their racial origins and affinities. In addition to the Polynesian population there is a second type resembling the Indonesian peoples of Malaysia, and a third extremely short-headed element. This paper deals mainly with the Polynesian and Indonesian types. The unrecognized presence of the Indonesian type has given rise to the theories of Indonesian affinities of the Polynesian people.

When the Indonesian element is removed, the Polynesian is more strikingly Caucasoid. Some of the Caucasoid traits of the Polynesians may be due to the presence of a third type not yet isolated. At present it seems best to regard the Polynesian type as an offshoot of the primitive Mongoloid stem, very close to where some Caucasians branched off.

The Indonesian type is usually regarded as Mongoloid also but is strongly divergent in the direction of the Negro. The resulting hybrid of the Polynesian and Indonesian types is much more Mongoloid in appearance than is either of the parental types.

The Polynesian and Indonesian types cannot be considered as close relatives in a physical sense. Indeed, their only claim for relationship is that both may be somewhat hesitatingly classed as divergent Mongols. But even if such a classification is eventually proved to be justified, the relationship is a very distant one.

In the Marquesas are marked inter-island differences in the distribution of these two types. The Indonesian type is for the most part confined to the islands of Ua Huku, Nuku Hiva, and Ua Pou. The Polynesian is also present in these islands, but is much less mixed with the Indonesian element in the southern islands of the group: Tahu Ata, Fatu Hiva, and Hiva Oa. In Tonga also the Indonesian element is much more concentrated in the northern island groups, Haapai and Vavau, but especially in Haano. No certain inter-island differences were found in Samoa.

These two types do not exhaust the possibility of finding other physical types in Polynesia. There is unmistakable evidence of Melanesian influence, particularly in Tonga. The Idonesian type has many Negroid characteristics, which have lead to an exaggerated opinion as to the amount of Melanesian blood in Polynesia.

In addition there is an extremely short-headed element in Polynesia, referred to by Dixon as Malayan; by Elliot-Smith as Proto-Armenoid; and by others as Indonesian, or Alpine. Apparently it is this element of the population that Deniker refers to as Polynesian. At present its claim to distinction as a separate type seems to consist chiefly of extremely short heads, associated with narrow faces,

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144 narrow noses, light skin and well developed beard and body hair. As yet I have not been able to establish a sufficiently large group of associated characters to warrant its discussion. It seems probable, however, that this type may account for some of the Caucasoid traits of the Polynesians. This, as well as many other phases of the Polynesian problem, needs further study in the areas in which the people are more characteristic of this type.

In a marginal area like Polynesia it is possible to find individual representatives of nearly all the races living in and around the Pacific. A study of the photographs in this and other papers on Polynesia will show that this possibility is realized to some extent in the Marquesas, Samoa, and Tonga. but to discuss them at present would be to magnify their importance. I have confined my efforts to those types whose presence could be unmistakably demonstrated in sufficient number to warrant the assumption that they had played an important part in the history or prehistory of Polynesia. I am not at all sure that I have isolated all of these elements even, in the three island groups considered here. Furthermore, it is probable that future studies may result in some modification in the characteristics I have assigned to the two main types discussed in this paper. The relative proportions of the different types given in this paper are of course tentative for it is only when it has been possible to reconstruct the various elements of the population in detail that it will be practicable to give definite estimates of their relative frequencies.

128 141 X142 144 In order that this paper may be of greater permanent value to those who do future work in Polynesia, or who may be inclined to carry my analysis further, I have presented the data and analyses in considerable detail. The extent of this detail may discourage those whose interest is only casual from hunting for the points which may be of special interest to them. For this reason I will briefly recapitulate the points of more general interest and indicate the section of the paper in which more detail on these points can be found.

The Marquesan material when seriated shows no tendency to form normal frequency distributions. The bimodal tendency encountered in Tonga is here encountered in an extended and exaggerated degree. Nearly every character is bimodal or multimodal. The range is enormous especially in the nasal, facial and cephalic indices. (See p. 145.) This condition is emphasized by the standard deviations and coefficients of variation which are greatly in excess of those for the Samoan and Tongan data. (See p. 165.)

141 X142 144 The Marquesans differ somewhat in their average characters from the Samoans and the Tongans. Their hair is more wavy, their skin is darker, they are more glabrous, they have more transversely placed nostrils, the enamel rim on the incisor teeth is less frequent, they are shorter in stature, have longer heads, their

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faces are narrower, but markedly lower, their bigonial diameters are greater and their noses are narrower and lower. (See p. 160.)

In the three southeastern islands of the group (Fatu Hiva, Tahu Ata, and Hiva Oa) the average stature is less, the minimum frontal diameter is less, the face width is smaller, but the height is much higher, the nose is higher and narrower than in the northwestern islands of the group. The skin color is lighter also. The differences are too great and far-reaching to be considered as local differentiation and indicate a non-homogeneous group. (See pp. 165-8.)

A detailed analysis showed two main tendencies in the association of characters which I have designated as follows:

TYPE I

Characterized by:

1. Taller stature
2. Longer heads
3. Higher faces
4. Narrower noses
5. Straighter hair (?)
6. More beard
7. More body hair
8. Lighter skin color
9. More frequent incisor rim

TYPE II

Characterized by:

1. Shorter stature
2. Shorter heads
3. Lower faces
4. Wider noses
5. More wavy hair (?)
6. Scant beard
7. Scant body hair
8. Darker skins
9. Infrequent incisor rim. (See p. 187)

On the assumption that the cephalic, facial, and nasal indices were the most distinctive anthropometric traits of these two types, the individuals were analyzed and classified as Type I, Type II or mixed and unclassified. That this analysis and classification was partly successful is indicated by the resulting averages of these groups. Marked and certain differences were found in twenty of the twenty-four characters studied. They emphasize the difference in the facial and nasal indices which amount to 12 points or more on the average. The differences in head form are less marked. Type I is mesocephalic and Type II is slightly brachycephalic. Type II also has thicker lips and less wide open eyes than Type I.

Type I occurs in all of the islands, but is least mixed in Tahu Ata, Fatu Hiva, and Hiva Oa. Type II is the dominant type in Nuku Hiva, Ua Huku, and Ua Pou. There is a residue of extremely short heads that are not accounted for by either or both of these types. (See p. 188.)

A re-analysis of the Samoan material shows that Type I is an important type, but that Type II is also present here to some extent. The gap between the two types is not so wide as in the Marquesas. This is taken to mean that Type II has never been so important numerically in Samoa or has been pretty thoroughly mixed with Type I or perhaps both of these things. No apparent inter-island diffrences occur in the frequency of these two types. But since the sample was mainly from Upolu this cannot be taken as final. In Samoa also there is a still larger residue of extremely short heads. (See p. 202.)

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A more detailed analysis of the Tongan data indicates that Type II is also present in Tonga. The presence of this type which has many Negroid characters is responsible for much of the heterogeneity attributed to Melanesian influence in a previous paper. Type II is more distinct here than in Samoa, but less so than in the Marquesas. Here again Type II has not become uniformly distributed throughout the archipelago, but is concentrated more strongly in the northeastern groups of Vavau and Haapai and especially in Haano. These two types account for about 60 per cent of the population of Tonga. The remaining 40 per cent contained a large number of individuals with short heads, narrow faces and narrow noses. (See p. 209.)

Type I is the true Polynesian. Its relationship to the Aino is suggested. When Type II is removed the Polynesians are much more Caucasoid than they have hitherto been described in this series, but this approach to the Caucasian may be due to the fact that there is a third type in Polynesia carrying these traits. They seem to stand intermediate between the Caucasians and the Mongols in a totality of their characters. It is possible to regard the Polynesian as Mongoloid only on the assumption that the primitive Mongoloid type gave rise to the Caucasian types. In this sense the Polynesian may be regarded as a near-Caucasian type or as the result of one of nature's attempts to evolve a Caucasian type. They at least must have branched off very near to where the Caucasians branched off. (See pp. 215-7.)

Type II is called tentatively an Indonesian type. It is commonly looked upon as Mongoloid, but its negroid characters are emphasized. It is also pointed out that these two types are not very closely related and have very little in common except the fact that both may be somewhat hesitatingly classified as divergent Mongoloid types, the one in the Caucasian direction, and the other in the direction of the negro. Earlier theories of relationships of these two types are due in part to the unrecognized presence of an Indonesian type in Polynesia and a Polynesian type in Indonesia combined with an unfortuate confusion in anthropological terminology.

These two types do not entirely exhaust the possibility of other types in Polynesia. Among other things there is an extreme degree of brachycephaly, or short headedness, to be explained. It seems very probable that this condition is due to the presence of a third type, but discussion of this point is reserved for the Hawaiian paper of this series, since Hawaii is a stronghold of this element. Although the characteristics of this type in detail are not yet certain, there seems to be associated with them short heads, high, narrow faces, narrow noses, light skins and a well-developed beard and body hair. The isolation of this type will probably modify some of the characteristics given to the two types which form the subject of this paper.

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INDIVIDUAL RECORDS

Individual records of the Marquesans, Samoans and Tongans on which the comparative studies of this paper are based are given in the accompanying tables. The Samoan and Tongan observations and measurements were made by E. W. Gifford and W. C. McKern; the Marquesan observations and measurements, by Dr. and Mrs. E. S. Handy; and the tables were compiled by Bessie P. Sullivan. The symbols used in the tables are as follows:

KEY TO TABLES OF INDIVIDUAL RECORDS

Explanation of Tables

A catalog number
B sex
C age
D island of birth
E hair form
F incisor rim, laterals
G incisor rim, mesials
1 stature
2 head length
3 head width
4 minimum frontal diameter
5 face width, maximum
6 bigonial diameter
7 anatomical face height
8 nasal height
9 nasal width

I cephaic index
II transverse fronto-parietal index
III transverse cephalo-facial index
IV zygomatico-frontal index
V zygomatico-mandibular index
VI anatomical facial index
VII nasal index

Body of tables

Under B: m = male; f = female

Under D: Island of Birth

Samoa
1—Upolu
2—Savaii
3—Fiji

Tonga
1—Niuatoputapu
2—Niuafoou
3—Vavau
4—Haapai
5—Tongatabu
6—Eua

Marquesas
1—Nuku Hiva
2—Ua Huku
3—Ua Pou
4—Hiva Oa
5—Tahu Ata
6—Fatu Hiva

Under E: hair form
1—straight
2—low waves
3—deep waves
4—curly
5—frizzly
6—woolly

Under F and G: enamel rim on incisor teeth
0—absent
1—slight
2—medium
3—marked

12: Sullivan D-4 (no date) 1923 OX6 Marquesas OX6

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*142
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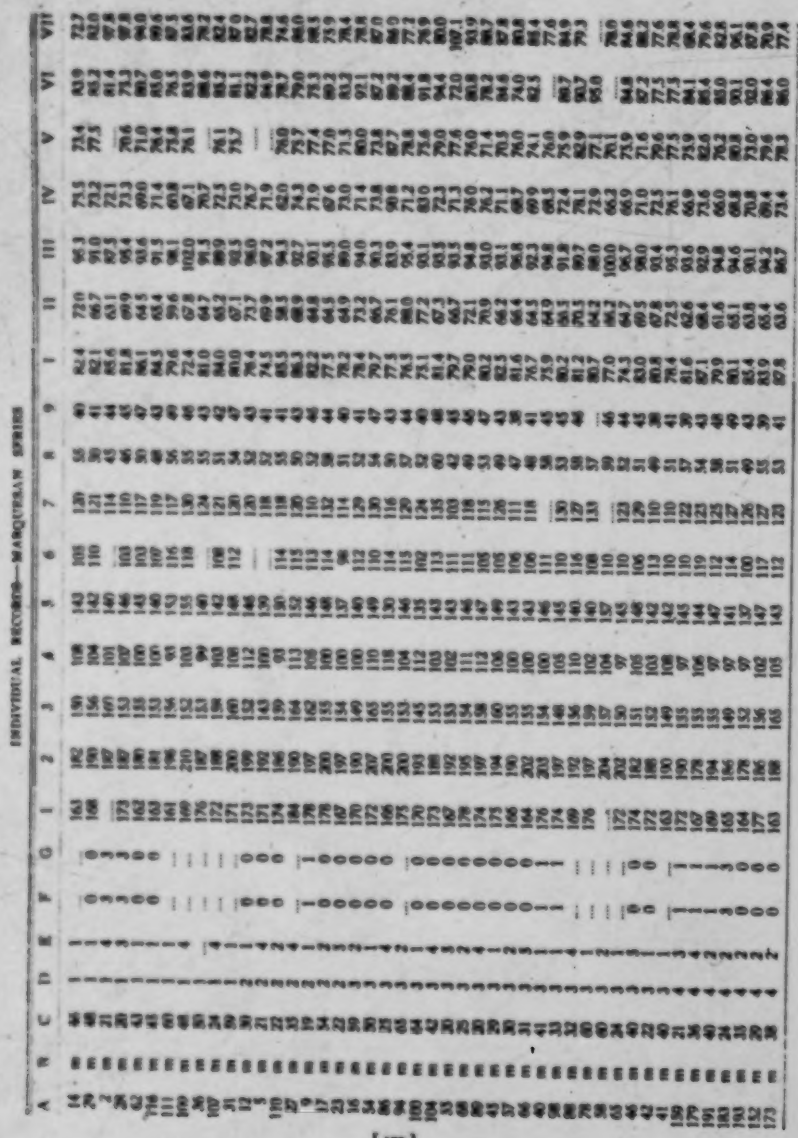

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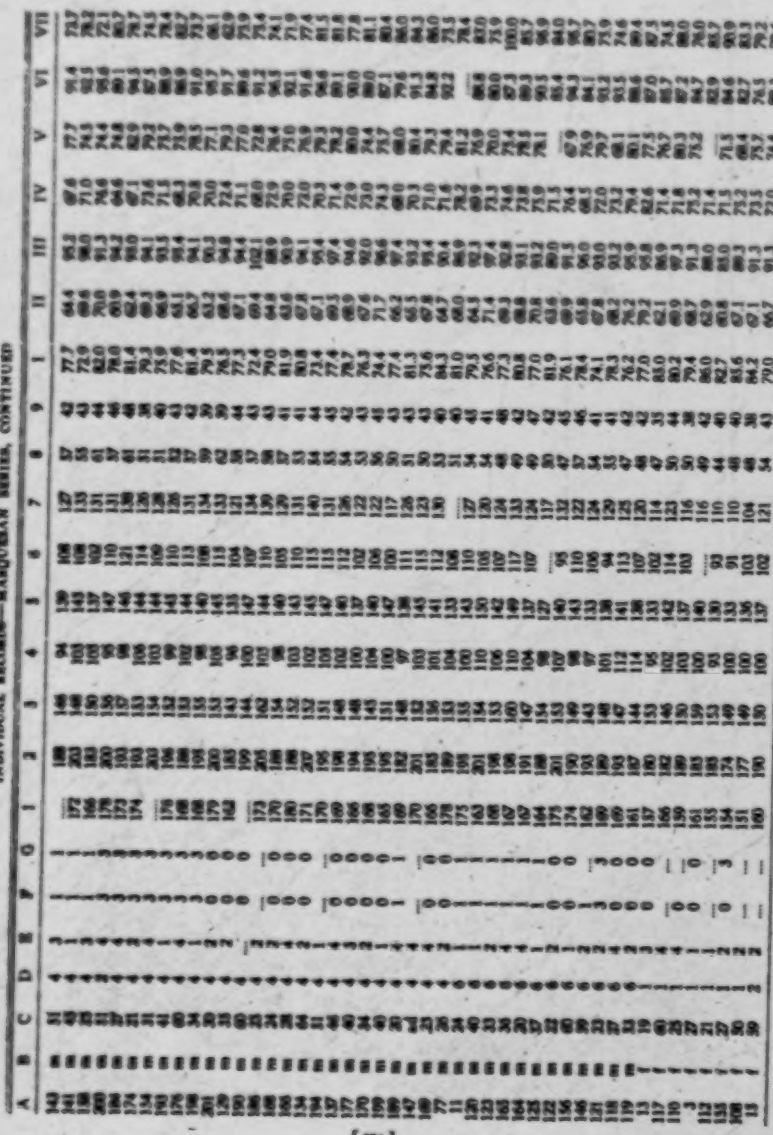
INDIVIDUAL RECORDS—MARQUESAN SERIES, CONTINUED



12: Sullivan D-4 (no date) 1923 CX6 Marquesas CX6

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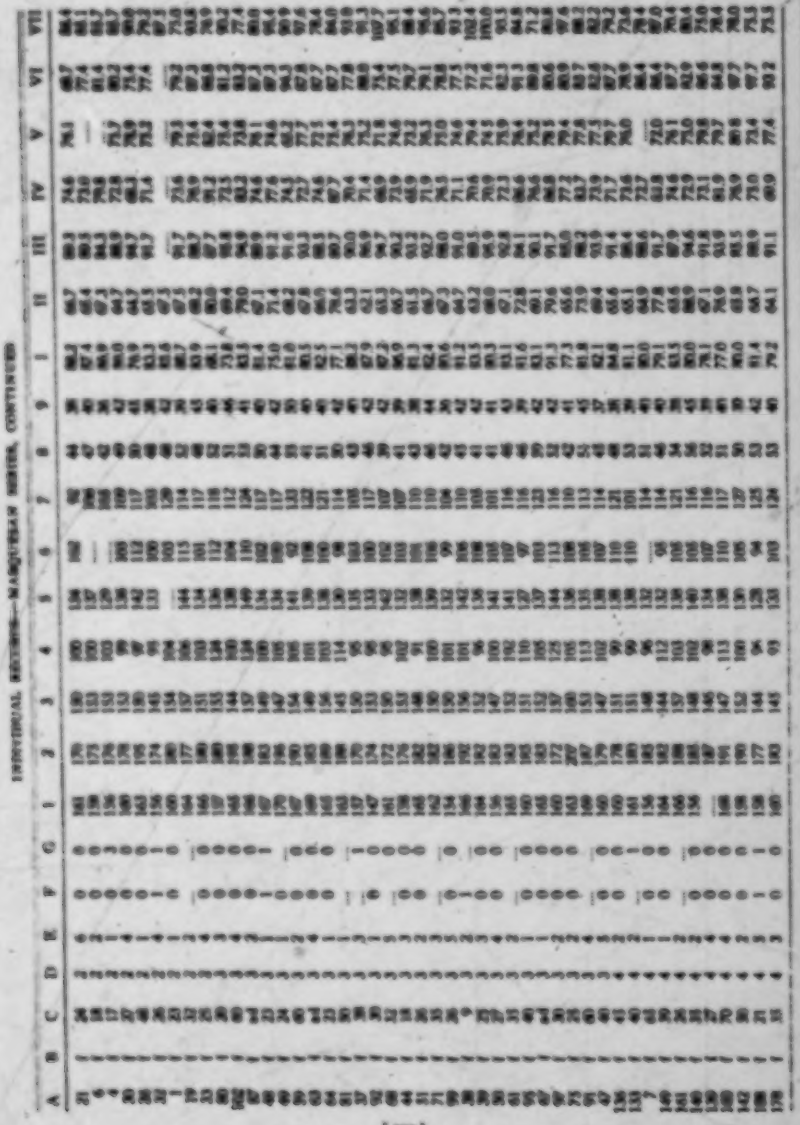

INDIVIDUAL RECORDS—MARQUESAN SERIES, CONTINUED

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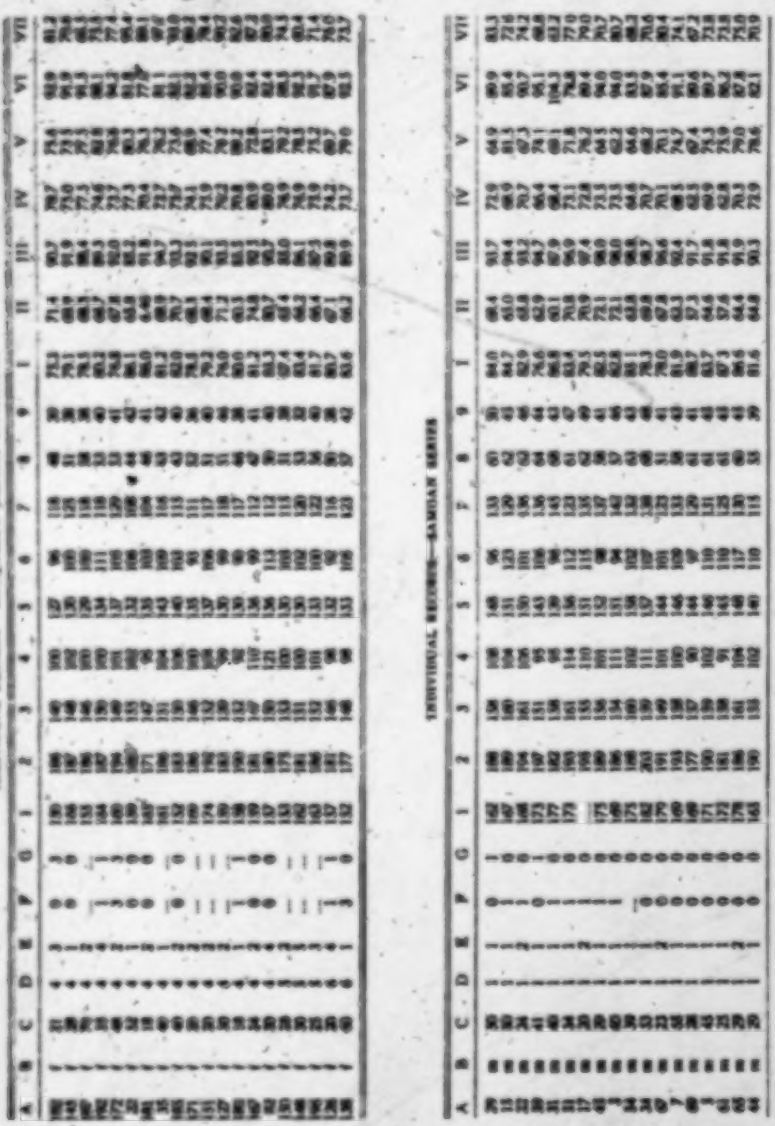

[ms]

[pp. 242-247 have been omitted from this source. -Analyst]

12: Sullivan D-4 (no date) 1923 CX6 Marquesas CX6

EXPLANATION OF PLATES

15
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128

The catalog numbers of the individuals illustrated are here given. By referring to the Appendix complete details as to stature, cephalic, facial, and nasal indices, and other measurements may be obtained.

PLATE I—POLYNESIAN MEN

1—No. 16
2—No. 100
3—No. 137
4—No. 128 Chief
5—No. 143
6—No. 158
7—No. 104
8—No. 88
9—No. 146
10—No. 184
11—No. 58
12—No. 194
13—No. 88
14—No. 146
15—No. 40

PLATE II—MEN WITH A LARGE INDONESIAN ELEMENT

1—No. 28 marked incisor rim
2—No. 5
3—No. 2
4—No. 11
5—No. 27 part-Hawaiian
6—No. 9
7—No. 42
8—No. 55
9—No. 11
10—No. 28
11—No. 42
12—No. 55
13—No. 9
14—No. 27
15—No. 2

PLATE III—POLYNESIAN WOMEN

1—No. 126
2—No. 110—part-Hawaiian
3—No. 7
4—No. 145
5—No. 81
6—No. 182 marked incisor rim
7—No. 180
8—No. 148
9—No. 172 marked incisor rim
10—No. 15
11—No. 151
12—No. 196
13—No. 192
14—No. 60
15—No. 139

PLATE IV—WOMEN WITH A LARGE INDONESIAN ELEMENT

1—No. 50
2—No. 44
3—No. 3 part-Hawaiian
4—No. 38
5—No. 51
6—No. 1
7—No. 22
8—No. 6
9—No. 47
10—No. 21 frizzly hair, but cephalic index 88.2
11—No. 44
12—No. 50
13—No. 35
14—No. 6
15—No. 51

12: Sullivan D-4 (no date) 1923 OX6 Marquesas OX6

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128

PLATE V—MIXED AND UNCLASSIFIED TYPES

1—No. 102
2—No. 161
3—No. 26
4—No. 48
5—No. 13
6—No. 59 } long heads, high faces,
7—No. 49 } and broad noses
8—No. 153
9—No. 23
10—No. 54
11—No. 152
12—No. 31
13—No. 116
14—No. 29
15—No. 14

PLATE VI—TYPES MIXED WITH CAUCASIANS AND ASIATICS

1—one-half Chinese
2—one-half Chinese
3—part-Chinese
4—part-Chinese
5—one-half Chinese
6—one-half Chinese
7—one-half Chinese
8—one-half Chinese
9—one-half Chinese
10—one-half Chinese
11—one-quarter white, one-quarter Tahitian
12—one-quarter white one-quarter Tahitian
13—one-half English
14—
15—one-quarter Spanish, one-quarter French

ERRATA

In "Marquesan Somatology," by Louis R. Sullivan, B. P. Bishop Mus. Mem., Vol. IX, number 2, 1923, Plates XXXVI-XLI should read "Volume IX" instead of "Volume VIII."

[Errata have been noted on plates —Analyst]

/85 cont./

At present on the island of Nuku Hiva (pop. ca. 980), there are only 4 individuals who can lay any claim to pure Marquesan ancestry. Some 13 others have made attempts to pass themselves off to visitors as being 'enana toitoi -- true Marquesans --, but their mixed ancestry is revealed with little inquiry. 162 144

Complete data on the ratio of male to female in the population were not available to me. However, enough data exist to show that the ratio has held fairly constant during a period of unusual flux in the past. 162

In the period between 1882 and 1897, during which the population dropped by about 12 per cent, the male-female proportions of the population were as follows: [175]

/86/

Year	Male	Female
1882	51.21%	48.79%
1897	52.01%	47.99%

The same source displays the remarkable effect of the lowered birth rate on the population as a whole by the proportions of adults to children (assumed to be those of 20-plus years and less than 20, respectively, as frequently appears in other French records). 163 175

Year	Adults	Children
1882	76%	24%
1897	76.50%	23.50%

This accounts for the top-heavy appearance of the Marquesan population, as recorded by many observers around the turn and the first decades of the twentieth century, in which many valleys contained nothing but adult inhabitants.

Further data are available for the period between 1897 and the 1951 and 1956 censuses. In the 1931 census, the population of the northern Marquesas, comprising the islands of Nuku Hiva, Ua Pou and Ua Huka, numbered 1206. Of these, 51% were male, 49% female. Although these data are not for the entire population of both northern and southern groups, they can be said to represent a valid sample. 161 175 [162]

The data available for calculating birth and death rates were less complete than those used for total population and 163 165 175